

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A photoelectric conversion element comprising an electrolyte composition, wherein the electrolyte composition comprises an ionic liquid and conductive particles,

wherein the electrolyte composition is in the form of a gel ~~without the addition of a gelling agent~~ by the action of the conductive particles, and

wherein the conductive particles comprise a material containing carbon as a main component.

2. (canceled).

3. (previously presented): The photoelectric conversion element according to claim 1, wherein a content of the conductive particles is not less than 0.05% by weight and not more than 10% by weight with respect to a total amount of the electrolyte composition.

4. (previously presented): The photoelectric conversion element according to claim 1, wherein a content of the conductive particles is not less than 0.05% by weight and not more than 10% by weight with respect to the ionic liquid.

5. (canceled).

6. (currently amended): The photoelectric conversion element according to ~~claim~~ claim 1, wherein the material containing carbon as a main component is one member or a

mixture of a plurality of members selected from the group consisting of carbon nanotubes, carbon fibers, carbon black, and other carbon nanoparticles.

7. (previously presented): The photoelectric conversion element according to claim 6, wherein the carbon nanotubes are either one of or a mixture of single-wall carbon nanotubes and multi-wall carbon nanotubes.

8. (canceled).

9. (currently amended): A photoelectric conversion element, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and
an electrolyte layer made of an electrolyte composition provided between the working electrode and the counter electrode,
wherein the electrolyte composition comprises an ionic liquid and conductive particles,
wherein the electrolyte composition is in the form of a gel ~~without the addition of a gelling agent~~ by the action of the conductive particles, and
wherein the conductive particles comprise a material containing carbon as a main component.

10. (currently amended): A dye-sensitized photovoltaic cell, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and

an electrolyte layer made of an electrolyte composition provided between the working electrode and the counter electrode,

wherein the electrolyte composition comprises an ionic liquid and conductive particles,

wherein the electrolyte composition is in the form of a gel ~~without the addition of a gelling agent~~ by the action of the conductive particles, and

wherein the conductive particles comprise a material containing carbon as a main component.

11. (withdrawn) An electrolyte composition comprising an ionic liquid and oxide semiconductor particles.

12. (withdrawn) The electrolyte composition according to claim 11, further comprising conductive particles.

13. (withdrawn): A gel comprising the electrolyte composition according to claim 11.

14. (withdrawn): The electrolyte composition according to claim 11, wherein the oxide semiconductor particles are one member or a mixture of two or more members selected from the group consisting of TiO_2 , SnO_2 , WO_3 , ZnO , ITO, BaTiO_3 , Nb_2O_5 , In_2O_3 , ZrO_2 , Ta_2O_5 , La_2O_3 , SrTiO_3 , Y_2O_3 , Ho_2O_3 , Bi_2O_3 , CeO_2 , and Al_2O_3 .

15. (withdrawn) The electrolyte composition according to claim 14, wherein the TiO_2 is either one of or a mixture of titanium oxide nanotubes and titanium oxide nanoparticles.

16. (withdrawn): The electrolyte composition according to claim 12, wherein the conductive particles are made of a material containing carbon.

17. (withdrawn): The electrolyte composition according to claim 16, wherein the material containing carbon as a main component is one member or a mixture of two or more members selected from the group consisting of carbon nanotubes, carbon fibers, carbon black, and other carbon nanoparticles.

18. (withdrawn): The electrolyte composition according to claim 17, wherein the carbon nanotubes are either one of or a mixture of single-wall carbon nanotubes and multi-wall carbon nanotubes.

19. (withdrawn): The electrolyte composition according to claim 11, wherein a compounding amount of the oxide semiconductor particles is not less than 0.05% by weight and not more than 70% by weight with respect to a total amount of the electrolyte composition.

20. (withdrawn): The electrolyte composition according to claim 12, wherein a total compounding amount of the oxide semiconductor particles and the conductive particles is not less than 0.05% by weight and not more than 70% by weight with respect to a total amount of the electrolyte composition.

21. (withdrawn): The electrolyte composition according to claim 11, wherein a compounding amount of the oxide semiconductor particles is not less than 0.05% by weight and not more than 70% by weight with respect to the ionic liquid.

22. (withdrawn): The electrolyte composition according to claim 12, wherein a total compounding amount of the oxide semiconductor particles and the conductive particles is not less than 0.05% by weight and not more than 70% by weight with respect to the ionic liquid.

23. (withdrawn): A photoelectric conversion element comprising the electrolyte composition according to claim 11 contained as an electrolyte.

24. (withdrawn): A photoelectric conversion element, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and
an electrolyte layer made of the electrolyte composition according to claim 11 provided between the working electrode and the counter electrode.

25. (withdrawn): A dye-sensitized photovoltaic cell, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and
an electrolyte layer made of the electrolyte composition according to claim 11 provided between the working electrode and the counter electrode.

26. (withdrawn): An electrolyte composition comprising an ionic liquid and insulating particles.

27. (withdrawn): A gel comprising the electrolyte composition according to claim 26.

28. (withdrawn): The electrolyte composition according to claim 26, wherein the insulating particles are one member or a mixture of both members selected from the group consisting of diamond and boron nitride.

29. (withdrawn): The electrolyte composition according to claim 26, wherein a compounding amount of the insulating particles is no less than 0.05% by weight and no more than 70% by weight with respect to a total amount of the electrolyte composition.

30. (withdrawn): A photoelectric conversion element comprising the electrolyte composition according to claim 26 as an electrolyte.

31. (withdrawn): A photoelectric conversion element, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and
an electrolyte layer made of the electrolyte composition according to claim 26 provided between the working electrode and the counter electrode.

32. (withdrawn): A dye-sensitized photovoltaic cell, comprising:
a working electrode, the working electrode comprising an electrode substrate and an oxide semiconductor porous film formed on the electrode substrate and sensitized with a dye;
a counter electrode disposed opposing the working electrode; and
an electrolyte layer made of the electrolyte composition according to claim 26 provided between the working electrode and the counter electrode.

33. (previously presented): The photoelectric conversion element according to claim 1, wherein the material containing carbon as a main component includes carbon nanotubes, carbon fibers, carbon black.

34. (withdrawn): The electrolyte composition according to claim 16, wherein the material containing carbon as a main component includes carbon nanotubes, carbon fibers, carbon black, and the like.

35. (previously presented): The photoelectric conversion element according to claim 1 wherein the ionic liquid is a room temperature molten salt that is liquid at room temperature.

36. (previously presented): The photoelectric conversion element according to claim 35 wherein the molten salt comprises a cation selected from the group consisting of a compound containing a quaternized nitrogen atom, a quaternary imidazolium derivative, a quaternary pyridinium derivative, and a quaternary ammonium derivative.

37. (previously presented): The photoelectric conversion element according to claim 35 wherein the molten salt comprises an anion selected from the group consisting of BF_4^- , PF_6^- , $\text{F}(\text{HF})_n^-$, bis(trifluoromethylsulfonyl)imide $[\text{N}(\text{CF}_3\text{SO}_2)_2]^-$, and iodide ions.

38. (previously presented): The photoelectric conversion element according to claim 1 wherein the conductive particles have a specific resistance of $1.0 \times 10^{-2} \Omega \cdot \text{cm}$ or less.

39. (previously presented): The photoelectric conversion element according to claim 1 further comprising oxidation-reduction pairs.

40. (previously presented): The photoelectric conversion element according to claim 6, wherein the carbon fibers have a diameter of between 50 nm and 1 μm and a length of between 1 μm to 100 μm .

41. (previously presented): The photoelectric conversion element according to claim 6, wherein the carbon black has a particle diameter of between 1 nm and 500 nm.

42. (previously presented): The photoelectric conversion element according to claim 7, wherein the single-wall carbon nanotubes are between 0.5 nm and 10 nm in diameter and between 10 nm to 1 μ m in length.

43. (previously presented): The photoelectric conversion element according to claim 7, wherein the multi-wall carbon nanotubes are between 1 nm and 100 nm in diameter and between 50 nm to 50 μ m in length.